

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/772,955
Attorney Docket No. Q62734

REMARKS

Claims 1-8 are all the claims pending in the application.

Applicant thanks the Examiner for acknowledging Applicant's claim for foreign priority based on the priority document submitted under 35 U.S.C. § 119(a)-(d), and for placing it in the record of the file.

Applicant also thanks the Examiner for initialing and returning form PTO-1449 submitted with the Information Disclosure Statement filed on January 31, 2001.

Applicant amends portions of the specification as shown in the Appendix to correct minor typographical errors. Applicant also submits new formal drawings for Figures 10A and 10B to correct a minor typographical error on each. The Examiner is respectfully requested to approve and acknowledge these drawings.

The Examiner rejects claims 1-5 and 7-8 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,691,764 to Takekoshi et al. Applicant respectfully traverses this rejection.

Takekoshi does not disclose or suggest all of the features of Applicant's invention as claimed in claims 1 and 7. For example, one of the features of Applicant's claimed invention is "a liquid crystal display panel sealing apparatus, comprising: a cassette for accommodating a plurality of laminated liquid crystal display panels into which liquid crystal is injected" (claim 1, see also claim 7). Takekoshi does not disclose or suggest such a feature.

First, the claims recite a "liquid crystal display panel sealing apparatus", not a scaling apparatus as the Examiner describes in the Office Action (Office Action of February 14, 2003, page 2, paragraph 5). In fact, Takekoshi does not disclose or suggest a liquid crystal display panel sealing apparatus at all. Takekoshi discloses "an examination apparatus for aligning the

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target objects" (column 2, lines 44-48). Applicant notes that this examination apparatus is separate and distinct from a liquid crystal display panel sealing apparatus, because Takekoshi discloses that its examination apparatus examines liquid crystal display panels that are already sealed (column 1, lines 12-17).

In particular, Takekoshi discloses that the liquid crystal display panels are already sealed when they are placed in the cassette ST of Takekoshi (column 6, lines 30-52). Because the examination apparatus of Takekoshi operates on liquid crystal display panels that have already been sealed, then Takekoshi does not disclose or suggest a sealing apparatus as required by the claim. Furthermore, because the liquid crystal display panels are already sealed when they are placed in the cassette ST of Takekoshi (column 6, lines 30-52), then cassette ST cannot disclose "a cassette for accommodating a plurality of laminated liquid crystal display panels *into which liquid crystal is injected*" (emphasis added) as required by claim 1.

By way of another example, Applicant's claimed invention defines a "pressurizing unit comprising a plurality of pressurizing actuators for pressurizing said plurality of liquid crystal display panels in said cassette". The Examiner alleges that motors 119, 114, 121, and 122 correspond to pressurizing actuators as required by Applicant's claimed invention. Applicant respectfully disagrees.

Takekoshi discloses motors 119, 114, 121, and 122 which adjust the x, y, z, and O-position of a single liquid crystal display panel (column 12, lines 40-43 and column 13, lines 15-17). In particular, the motors adjust ball screws that move the panel along the respective axis.

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These motors are not actuators that pressurize the panel; rather, they merely adjust the position of the panel in the examination apparatus.

Furthermore, Takekoshi's motors operate only on a single panel that has been removed from the cassette ST. In particular, the motors 119, 114, 121, and 122 only adjust the position of one of the panels in the cassette (column 12, lines 40-67). They do not operate on the "plurality of liquid crystal display panels in said cassette" as claim 1 requires. In Takekoshi, the panels are removed from the cassette ST by a transfer robot and placed into the examination apparatus, where the panel is moved by the motors. It is during the examination process, after the panel has been removed from the cassette, when the motors adjust the position of the single panel in the examination apparatus (column 7, line 43 through column 8, lines 47). Because Takekoshi does not operate on all of the panels in the cassette ST together, Takekoshi does not disclose and is incapable of suggesting "pressurizing said plurality of liquid crystal display panels in said cassette" (claim 1, see also claim 7).

Furthermore, with regard to claim 7, because Takekoshi does not disclose or suggest pressurizing the panels, it cannot disclose the claimed feature of "the pressure within each of said liquid crystal display panels is made uniform." That is, the motors 119, 114, 121, and 122 cited by the Examiner do not subject the panel to any pressure; therefore Takekoshi cannot disclose that the pressure within the panels is made uniform.

For the foregoing reasons, Applicant's claims 1 and 7 are not anticipated by (i.e. are not readable on) Takekoshi. Claims 2-5 and claim 8 are allowable at least by virtue of their dependence on base claims 1 and 7, respectively.

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The Examiner rejects claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Takekoshi, alleging that it would be "obvious and conventional" for one of ordinary skill in the art to wipe liquid crystal spilled from LCD panels while pressurizing is operated for cleaning surfaces of the seal material with ultraviolet rays for binding and hardening the sealing members. Applicant respectfully disagrees.

First, because Takekoshi discloses a liquid crystal display panel examination apparatus that operates only on sealed panels, it would not be obvious to apply the teaching of Takekoshi to any device relating to the sealing of liquid crystal display panels, including but not limited to a "wiping unit for wiping up liquid crystal spilled from said liquid crystal display panels while said pressurizing unit is being operated" as recited in claim 6. For example, one skilled in the art would not have been motivated to implement a wiping unit that wipes spilled liquid crystal from unsealed panels into an examination apparatus of Takekoshi, which operates only on sealed panels.

Furthermore, the Examiner provides no support for the contention that it would have been obvious to wipe up liquid crystal spilled from the liquid crystal display panels while said pressurizing unit is being operated. Because nothing in Takekoshi indicates that such a wiping unit would have been desirable, and the Examiner has not provided any evidence or support for that contention, claim 6 is not obvious in view of Takekoshi.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

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Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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PATENT TRADEMARK OFFICE

Date: May 14, 2003

APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

On page 8, the paragraph beginning at line 4 is changed as follows:

“Returning to Fig. 4, the seal material coating unit 4 is constructed by an XY robot 41 for moving Z-axis heads 42a and ~~43b~~ 42b apart at a predetermined distance along the X direction. The Z-axis heads 42a and 42b can move along the Z direction. The Z-axis heads 42a and 42b are supplied with pressurized air from controllers 43a and 43b via air feed tubes 44a and 44b.”

On page 9, the paragraph beginning at line 31 is changed as follows:

“Next, at step 1005, the pressurizing unit 2 is operated, that is, the pressurizing actuators 22-1, 22-2 and 22-3 are individually driven by the feedback of the output signals of the pressure sensors ~~2224~~-1, ~~2224~~-2 and ~~2224~~-3. In this case, each of the values of the output signals of the pressure sensors 24-1, 24-2 and 24-3 is brought close to a value which is one third of an initial total pressure such as 60 kgf, so that the pressure within each of the LCD panels P is made uniform.”

On page 10, the paragraph beginning at line 7 is changed as follows:

“Next, at step 1007, the pressurizing unit 2 is operated, that is, the pressurizing actuators 22-1, 22-2 and 22-3 are individually driven by the feedback of the output signals of the pressure sensors ~~2224~~-1, ~~2224~~-2 and ~~2224~~-3. In this case, each of the values of the output signals of the pressure sensors 24-1, 24-2 and 24-3 is gradually increased to a value such as about 0.2 to 5 kg/cm², so that the pressure within each of the LCD panels P is also made uniform.

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Simultaneously, since liquid crystal is poured from the liquid crystal injection openings OP of the LCD panels P, the wiping unit 3 is operated to wipe up the poured liquid crystal. While the wiping unit 3 is being operated four times, the pressurizing unit 2 is operated, so that the values of the output signals of the pressure sensors 24-1, 24-2 and 24-3 are gradually decreased to a value such as 1 kg/cm^2 , to stop the liquid crystal from being poured."

On page 10, the paragraph beginning at line 30 is changed as follows:

"Next, at step 1009, the pressurizing unit 2 is operated, that is, the pressurizing actuators 22-1, 22-2 and 22-3 are individually driven by the feedback of the output signals of the pressure sensors ~~2224~~-1, ~~2224~~-2 and ~~2224~~-3. In this case, each of the values of the output signals of the pressure sensors 24-1, 24-2 and 24-3 is gradually decreased to zero, so that the pressure within each of the LCD panels P is also made uniform. Thus, the liquid crystal injection openings OP of the LCD panels P are completely sealed."